

162494

Tuesday, June 06, 2017 4:57:34 PM

N900040100

Setup Start *NS1*

Stop *NS2*

3

Cust Item ID:

3

Customer:

Run Start *NR1*

Tooling: _____ **Date:** _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Draw Nbr	Revision Nbr
646.9700	REV D2

110

Packaging	Memo	0.00
-----------	------	------

Packaging

120	0.00
-----	------

120

Small Fab	Memo	0.55
-----------	------	------

Small Fab Assemble as per dwg and apply loctite 598 on all faying surfaces per note.

A/R RTV LOCTITE 598: 137797
exp. date: 04/19

130	QC5- Inspect part completeness to step on W/O	0.00
-----	---	------

130

QC	Memo	0.06
----	------	------

Quality Control

DAS
38
9-89

AUG 15 2017

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 162494

Tuesday, June 06, 2017 4:57:34 PM

162494

Page 2

Item ID: 646.9701 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Cutter Sub Assembly
Start Date: 6/8/2017 Start Qty: 3.00 ***3*** Cust Item ID:
Required Date: 6/21/2017 Req'd Qty: 3.00 ***3*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Identify as per dwg & Stock Location CC6007	0.00							
140						3	AUG 15 2017	DAS 6 9-89	
Packaging	Memo	0.03							
Packaging	***IDENTIFY AS PER IAW MPP-120***								
150	QC21- Final Inspection - Work Order Release	0.00							
150							DAS 21 9-89	AUG 21 2017	
QC	Memo	0.30							
Quality Control									

UN 8/15/17.

DAS 21 9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
OTHER : ☐									

Picklist Print

Monday, June 05, 2017 4:53:59 PM

Page 350

Work Order ID: 162494

162494

Parent Item: 646.9701

646 9701

Parent Item Name: Cutter Sub Assembly

Start Date: 6/8/2017

Required Date: 6/21/2017

Start Qty: 3.00

Required Qty: 3.00

Comments: IPP REV:A 12.08.13 NEW ISSUE DD VERF:JFS
:B AS PER REV D 16-03-07 JLM VERIFIED BY:JFS

IPP REV

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
646.9710 *646 9710* Body		Manufactured	No			110	Each	6.0000	1	3			
									**				
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					cck012			6					
					157197			6					
646.9711 *646 9711* Blade		Manufactured	No			110	Each	6.0000	2	6			
									**				
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					CCK106			6					
					156758			3					
					157192			3					
MS27039-08-19 *MS27039-08-19* Screw		Purchased	No			110	Each	290.0000	6	18			
									**				
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					GA			30					
					m135948			26					
					m137178			4					
					ST277			260					
					m137361			60					
					m137464			200					

DAS 6 9-89 JUL 1 8 2017

DAS 6 9-89 JUL 1 8 2017

DAS 6 9-89 JUL 1 8 2017

16371x4
161674x2

137951x10

8

Monday, June 05, 2017 4:53:59 PM

Shop Packet Print

Page 350

Picklist Print

Monday, June 05, 2017 4:53:59 PM

Work Order ID: 162494

162494

Parent Item: 646.9701

646 9701

Parent Item Name: Cutter Sub Assembly

Start Date: 6/8/2017

Required Date: 6/21/2017

Start Qty: 3.00

Required Qty: 3.00

NAS1149FN832P

Purchased

No

110

Each

1,771.000

12

36

NAS1149FN832P

**

Washer

DAS
6
9-89

JUL 18 2017

Location

Loc Qty

Loc Code

GA

358

M135058

208

M136182

40

M136866

110

ST263

1413

M137412

1413

36

MS21042L08

Purchased

No

110

Each

715.0000

6

18

MS21042L08

**

Nut

DAS
6
9-89

JUL 18 2017

Location

Loc Qty

Loc Code

GA

100

m135274

6

m135978

94

ST303

615

m137391

391

m137464

224

18



APICAL INDUSTRIES, INC.
dba DART AEROSPACE

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

ENGINEERING CHANGE NOTICE NO.

05360

SHEET 1 OF 1

DWG NO. 646.9700

REV: D

PREPARED BY J. BECKER

DATE: 03/24/16

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: CUTTER SUB ASSY

APPROVED BY:

ENGR

MFG

QC

EFF.

CURRENT ORDER

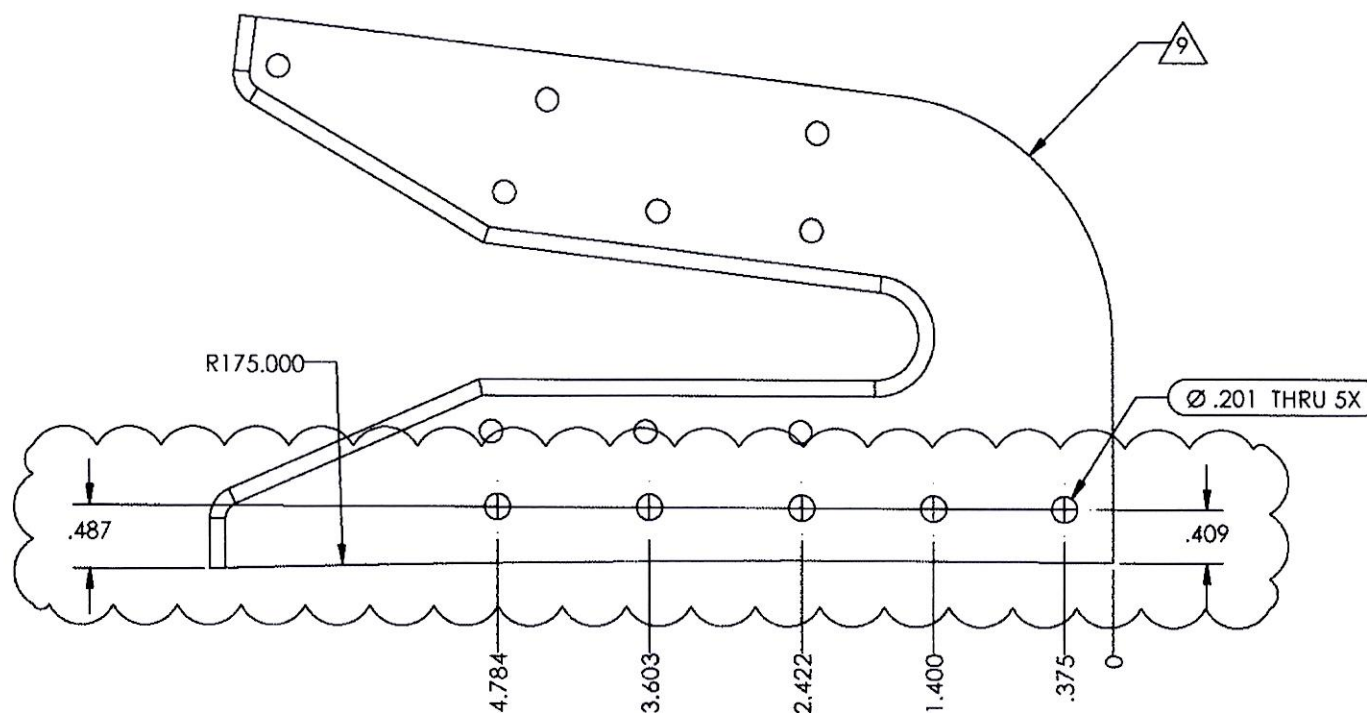
REASON: REVISED DIMENSIONS

ECR:

N/A

ACTION ITEM:
1.

SHEET 7, ZONE C3 IS:



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 16 2494 M5

1706-08

DOCUMENTS EFFECTED:

☐ PATTERN ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

DART AEROSPACE APICAL INDUSTRIES, INC. dba DART AEROSPACE	ENGINEERING CHANGE NOTICE NO. 05345		SHEET 1 OF 1	
	DWG NO. 646.9700	REV: D	PREPARED BY J. GARDINER	DATE: 03/15/16
	DWG TITLE: CUTTER SUB ASSY EFFECT ON DWG ☐ INC. ☒ UNINC.			
APPROVED BY: ENGR. <i>[Signature]</i>		MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF. CURRENT ORDER
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REVISED NOTES		ECR: N/A

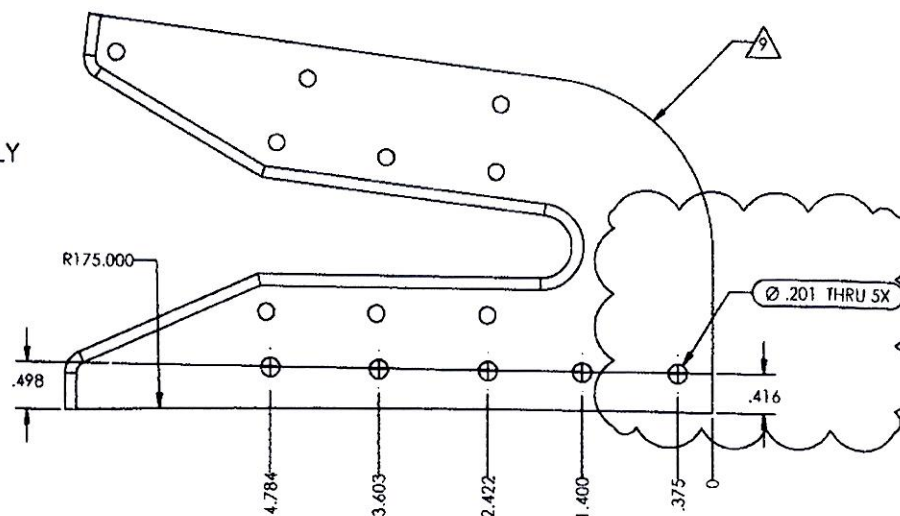
SHEET 1, ZONE A6 IS:

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH IAW MPP-172 SECTION 2.1, 3.3 & 4.3.
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MPP-172 SECTION 3.3; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

IS

SHEET 7, ZONE C5 IS:



DOCUMENTS EFFECTED:

☐ PATTERN ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY
☐ MAJOR ☒ MINOR

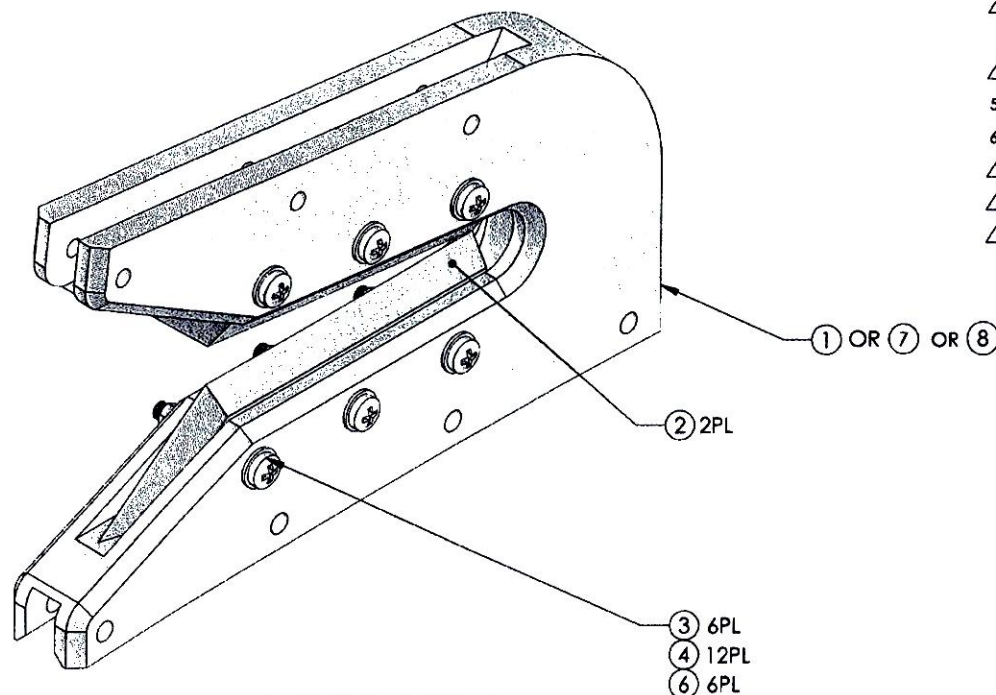
DER REVIEW REQUIRED
☐ YES ☒ NO

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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
	LAST PROTOTYPE REVISION - P92		N/C
HC	INITIAL RELEASE	03/29/09	P. BRAVO
A	INCORPORATED ECH 02744, 03038, 03912	06/06/13	P. BRAVO
B	INCORPORATED ECH 03947	07/03/13	P. BRAVO
C	INCORPORATED ECH 04009	08/09/13	P. BRAVO
D	INCORPORATED ECH 04529	02/26/16	P. BRAVO

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH IAW MPP-172 SECTION 3.3 & 4.3.
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MPP-172 SECTION 3.3; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP. DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.



646.9701 SHOWN
646.9702 & 646.9703 TYP

UNINCORPORATED ECN(S)

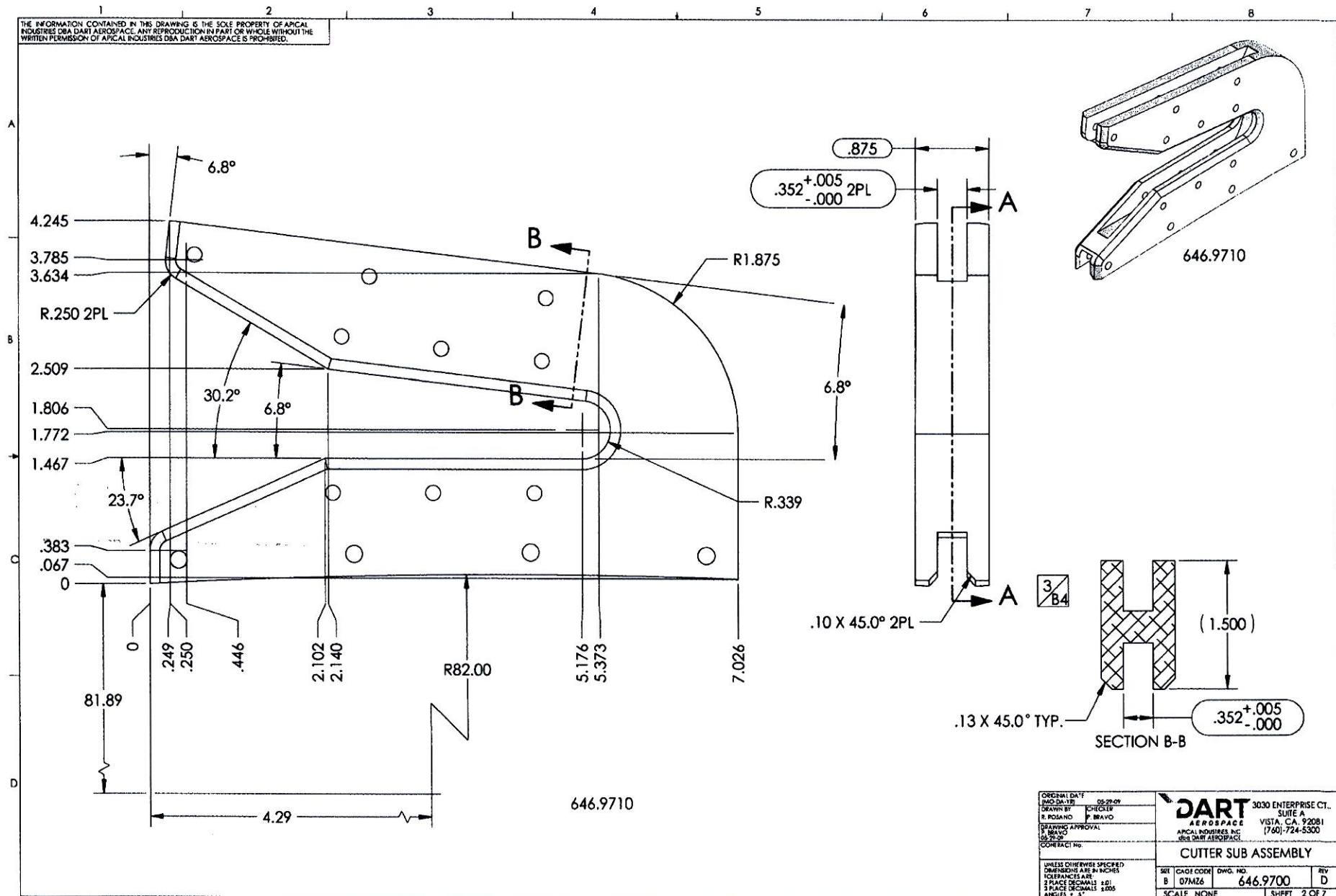
05345, 05360,

1			8	646.9713	BODY			
	1		7	646.9712	BODY			
6	6	6	6	601.1541	LOCKNUT	MS21042L08		
A/R	A/R	A/R	5	601.2045	RTV, LOCTITE 598			
12	12	12	4	601.2764	WASHER	MS1111H1832P		
6	6	6	3	601.2765	SCREW	MS27039-0819		
2	2	2	2	646.9711	BLADE			
			1	646.9710	BODY			
X				646.9703	CUTTER SUB ASSY			
	X			646.9702	CUTTER SUB ASSY			
		X		646.9701	CUTTER SUB ASSY			
9703	9702	9701	FIND #	PART #	DESCRIPTION	MATL	SPEC.	
QTY				PARTS LIST				
NEXT ASSY (S)				ORIGINAL DATE 03-29-09				
646.9600				DRAWN BY JCHICKEE				
				B. POHANO P. BRAVO				
				DRAWING APPROVAL				
				B. POHANO P. BRAVO				
				CONTRACT NO.				
				UNLESS OTHERWISE SPECIFIED				
				DIMENSIONS ARE IN INCHES				
				TOLERANCES ARE:				
				3 PLACE DECIMALS ±.01				
				ANGLES ±.5°				
				SER (CAGI CODE) DWG. NO.				
				B 07M26 646.9700				
				SCALE NONE				
				SHEET 1 OF 7				

DART 3030 ENTERPRISE CT.,
AEROSPACE SUITE A
VISTA, CA, 92081
APCAL INDUSTRIES INC. (760) 724-5300
(DART AEROSPACE)

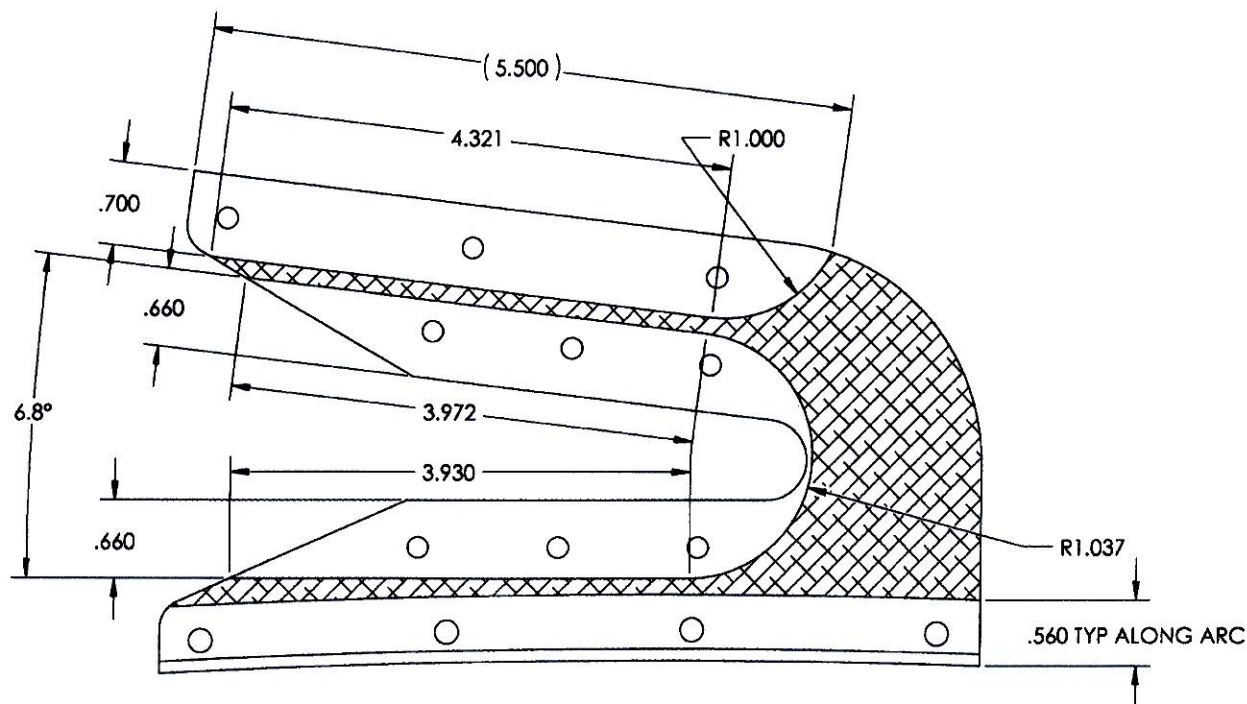
CUTTER SUB ASSEMBLY

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ORIGINAL DATE 05-29-09		DART 3030 ENTERPRISE CT., SUITE A VISTA, CA. 92081 (760)-724-5300	
DRAWN BY E. ROSANO	CHECKED BY P. BRAVO	APICAL INDUSTRIES INC. DBA DART AEROSPACE	
DRAWING APPROVAL P. BRAVO 05-29-09		CUTTER SUB ASSEMBLY	
CONTRACT NO. 646.9710		REV B	D
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DECIMALS ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ± .5°		SCALE NONE	SHEET 2 OF 7

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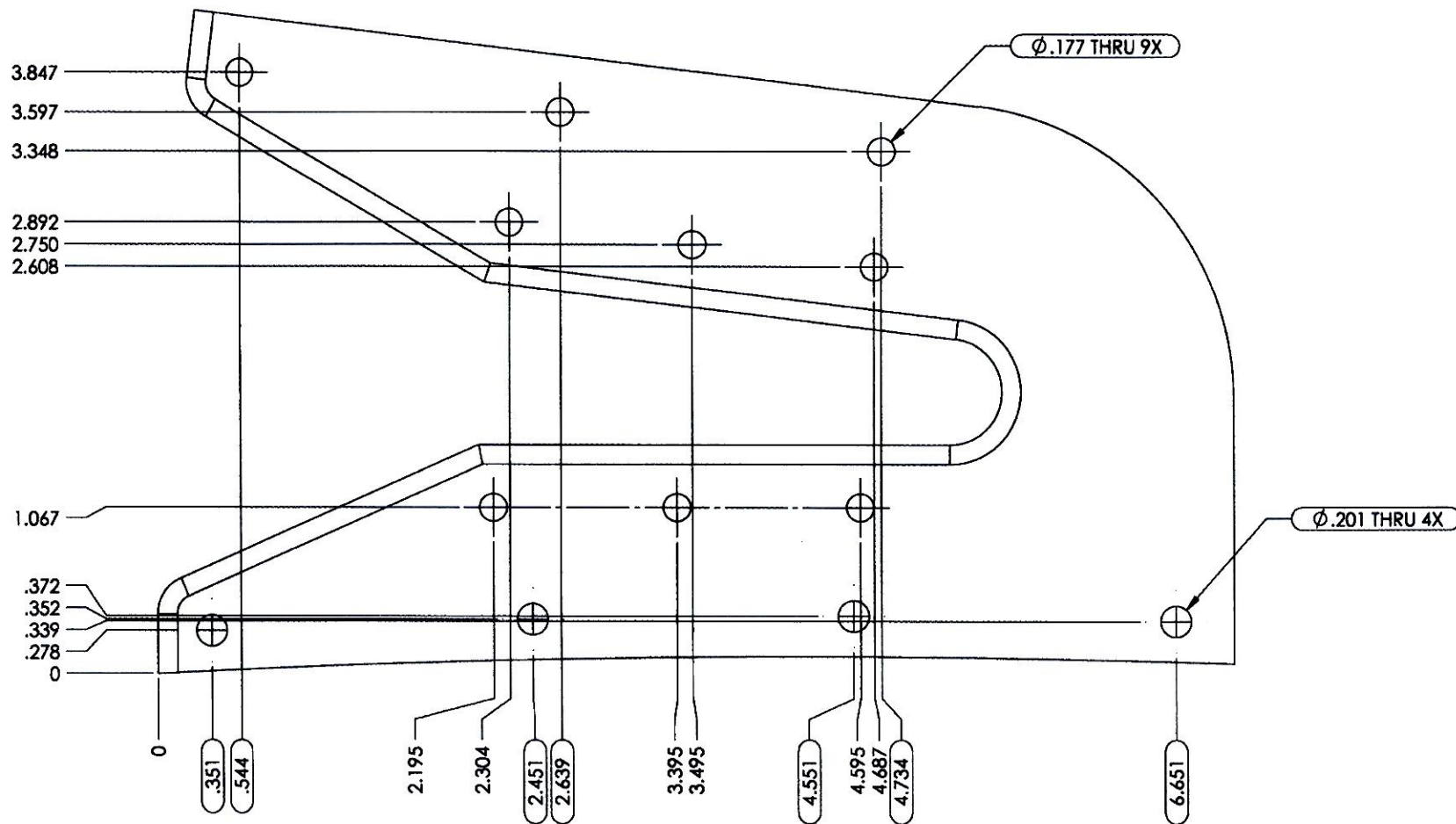


SECTION A-A $\frac{2}{C6}$

646.9710

ORIGINAL DATE	05-20-09	DART 3030 ENTERPRISE CT. SUITE A VISTA, CA. 92081 (760)-724-5300 APCAL INDUSTRIES, INC. DBA DART AEROSPACE		
DRAWN BY	CHUCKER			
IN. ROSANO	P. BRAVO			
DESIGNED & APPROVAL	P. BRAVO			
CONTRACT NO.		CUTTER SUB ASSEMBLY		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ±.01 2 PLACE DECIMALS ±.005 ANGLES ±.5°		SIZE CAGE CODE B 07M26	DWG. NO. 646.9700	REV. D
SCALE NONE		SHEET 3 OF 7		

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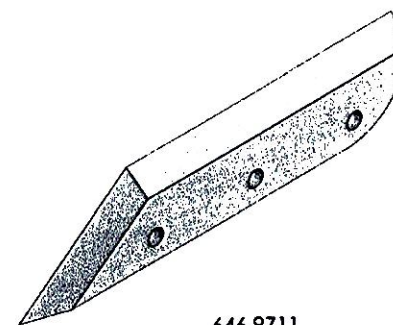
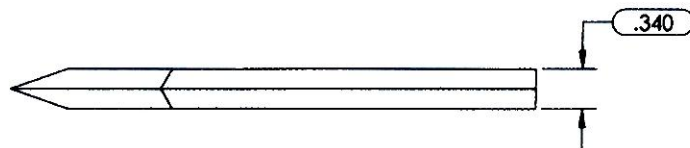


HOLE LOCATIONS +/- .002

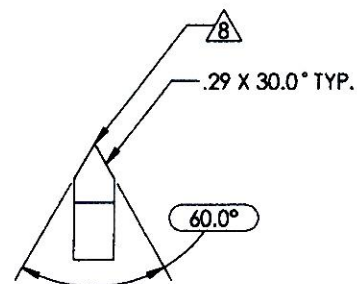
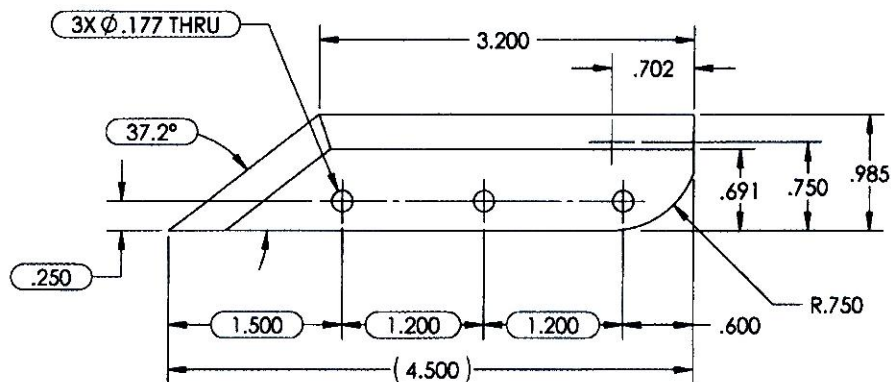
646.9710

ORIGINAL DATE: 05-27-09		DART AEROSPACE 3030 ENTERPRISE CT., SUITE A VISTA, CA. 92081 (760)-724-5300	
DRAWN BY: CHECKER		APICAL INDUSTRIES INC DBA DART AEROSPACE	
BY: ROSAND P. BRAYD		CUTTER SUB ASSEMBLY	
DRAWING APPROVAL: P. BRAYD		REV. D	
CONTRACT NO.		SCALE: NONE	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		SHEET 4 OF 7	
TOLERANCES ARE:		CAGE CODE: 646.9700	
2 PLACE DECIMALS .01		DWG NO: 646.9700	
3 PLACE DECIMALS .005		REV. D	
ANGLES: 1°		SCALE: NONE	

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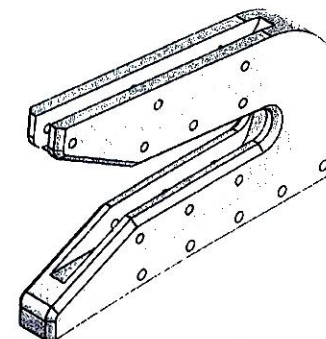
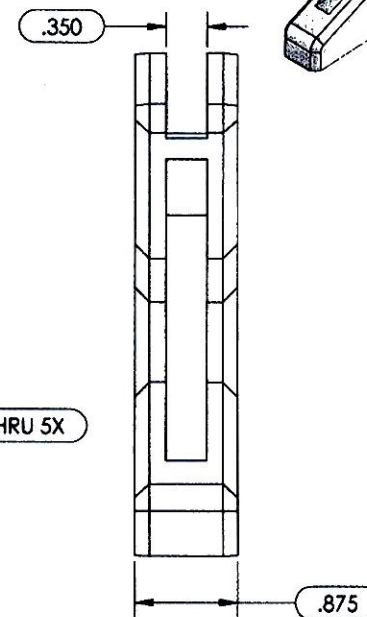
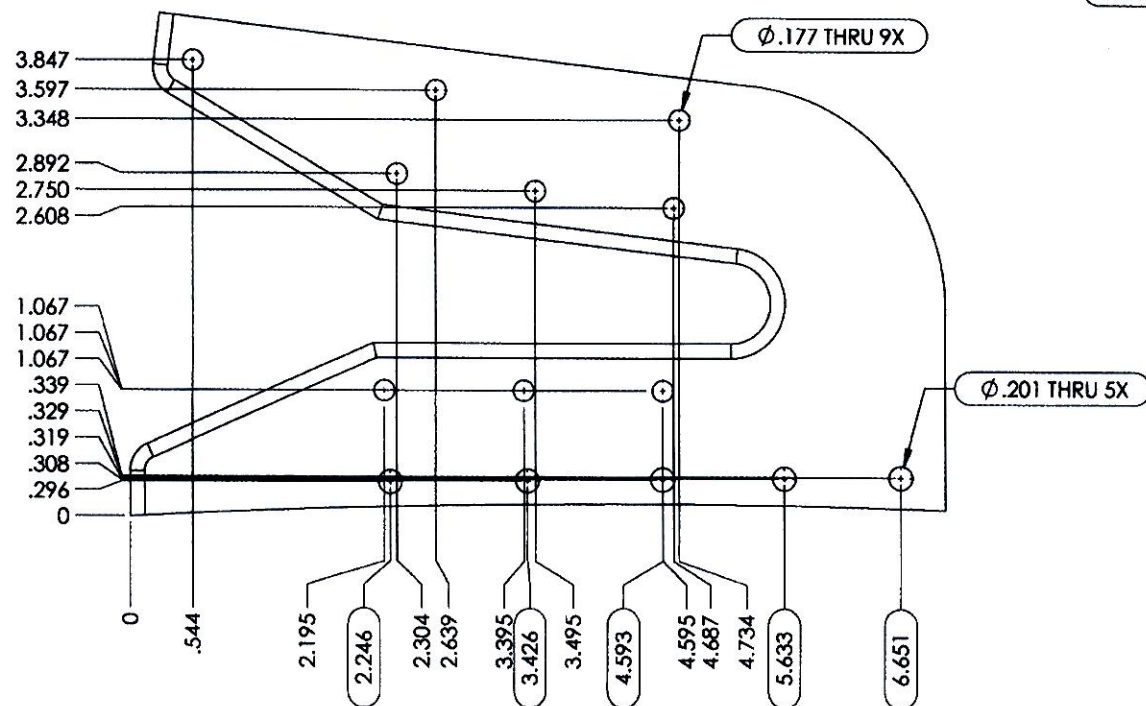
646.9711



646.9711

ORIGINAL DATE		3030 ENTERPRISE CT., SUITE A	
DRAWN BY		VISTA, CA. 92081	
R. BOIANO		(760)-724-5300	
CHECKED BY		APICAL INDUSTRIES INC.	
P. BRAYO		DBA DART AEROSPACE	
APPROVED BY			
DATE			
CONTRACT NO.			
CUTTER SUB ASSEMBLY			
UNLESS OTHERWISE SPECIFIED		REV.	
DIMENSIONS ARE IN INCHES		B	
TOLERANCES ARE:		D	
2 PLACE DECIMALS ±.01		646.9700	
3 PLACE DECIMALS ±.005		SCALE NONE	
ANGLES ±.5°		SHEET 5 OF 7	

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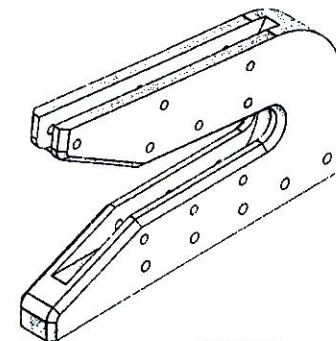


646.9712 $\triangle 9$

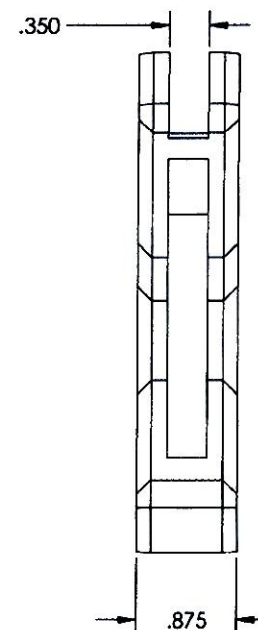
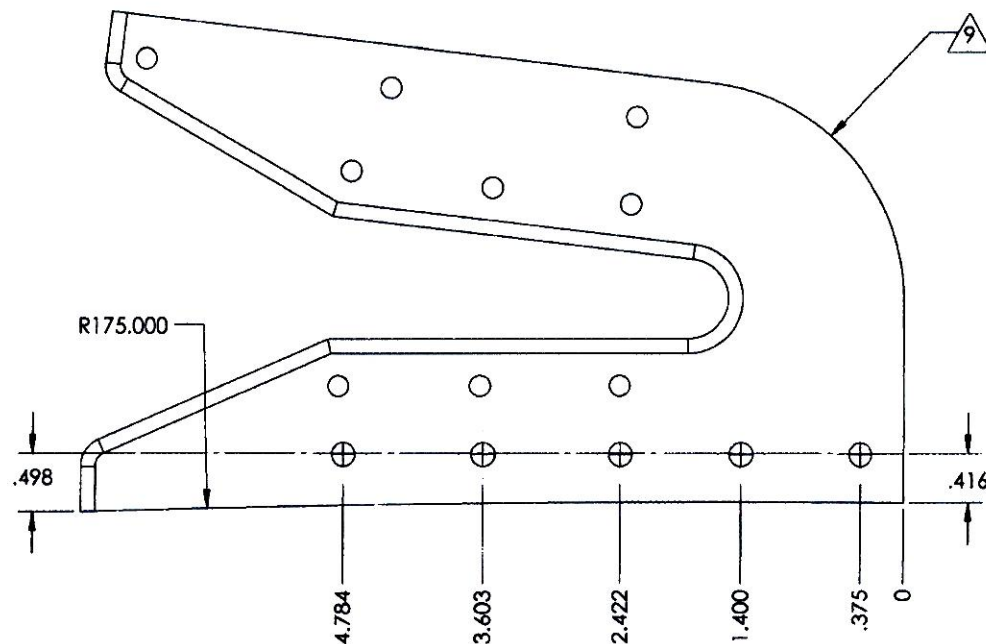
646.9712

ORIGINAL DATE 05-20-00		DART AEROSPACE 3030 ENTERPRISE CT., SUITE A VISTA, CA. 92081 (760) 724-5300	
DRAWN BY R. ROSANO		CHECKED BY P. BRAYO	
DESIGNED BY P. BRAYO		APPROVED BY P. BRAYO	
CONTRACT NO.		CUTTER SUB ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS $\pm .01$ 3 PLACE DECIMALS $\pm .005$ ANGLES $\pm .5^\circ$		REV 8	REV D
SCALE NONE		SHEET 6 OF 7	

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646.9713



ORIGINAL DATE: 05-28-01		DART AEROSPACE 3030 ENTERPRISE CT. SUITE A VISTA, CA. 92081 (760)-724-5300	
DRAWN BY: P. ROSANO		CHECKED BY: P. BRAVO	
DRAWING APPROVAL: P. BRAVO		APICAL INDUSTRIES, INC. DBA DART AEROSPACE	
CONTRACT NO.:		CUTTER SUB ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ±.01 2 PLACE DECIMALS ±.005 ANGLES ±.5°		REV. D	REV. D
SET: B	CAGE CODE: 07M26	DWG NO: 646.9700	SCALE: NONE
SHEET 7 OF 7		SHEET 7 OF 7	